

We Claim:

1. A method for supporting a geographical-based service for at least one terminal node in a communications system, the method comprising:
 - (a) determining a first geographical position that is associated with a first terminal node;
 - (b) inserting the first geographical position into a message header of a first datagram; and
 - (c) sending, by the first terminal node, the first datagram.
2. The method of claim 1, wherein the first geographical position is indicative of an approximate location of the first terminal node.
3. The method of claim 1, wherein the first geographical position is indicative of an approximate destination position.
4. The method of claim 1, wherein (a) comprises:
 - (i) acquiring the geographical position by the terminal node with a Global Position Satellite (GPS) location determination module.
5. The method of claim 1, wherein (a) comprises:
 - (i) obtaining the first geographical position from a serving network.
6. The method of claim 1, wherein (a) comprises:
 - (i) obtaining the first geographical position through a user interface.
7. The method of claim 1, wherein (a) comprises:
 - (i) acquiring the geographical position by utilizing a time difference of arrival (TDOA) technique.
8. The method of claim 1, wherein (b) comprises:
 - (i) selecting a selected datagram; and
 - (ii) inserting the geographical position into a message header of the selected datagram.

9. The method of claim 1, further comprising:
 - (d) inserting an indicator into the first datagram, wherein the indicator restricts processing of the first geographical position by another entity of the communications system.
10. The method of claim 1, wherein the datagram complies with an Internet Protocol version 6 (IPv6) specification and wherein (b) comprises inserting the first geographical location into an extension header of the first datagram.
11. The method of claim 10, wherein the extension header comprises a destination option header.
12. The method of claim 10, wherein the extension header comprises a hop-by-hop header.
13. The method of claim 1, further comprising:
 - (d) inserting a specified radius into the message header of the first datagram, the specified radius being indicative of a serving area for the geographical-based service.
14. The method of claim 1, wherein the communications system comprises a wireless system and the first terminal node comprises a mobile node.
15. The method of claim 1, wherein the first terminal node is selected from the group consisting of a wireless telephone, a workstation, a personal computer (PC), and a stationary communications device.
16. The method of claim 1, wherein (a) comprises:
 - (i) selecting a technique for determining the first geographical position.
17. The method of claim 16, further comprising:
 - (d) inserting a technique identification into the message header of the first datagram, the technique identification identifying the selected technique for determining the first geographical position.
18. The method of claim 1, wherein the first geographical position comprises an approximate longitude and an approximate latitude of a position of the terminal node.

19. The method of claim 13, further comprising:
 - (e) receiving, by another terminal node, the first datagram; and
 - (f) determining another geographical position, the other geographical position being associated with the other terminal node; and
 - (g) if the other terminal node is within an approximate circular area, accepting the first datagram, wherein the approximate circular area is specified by the specified radius in relation to the first geographical position.
20. The method of claim 19, further comprising:
 - (h) displaying, by the other terminal node, information that is indicative of the first geographical position.
21. The method of claim 1, wherein the first datagram is contained in a stream of datagrams.
22. A computer-readable medium having computer-executable instructions for performing the method as recited in claim 1.
23. A computer-readable medium having computer-executable instructions for performing the method as recited in claim 9.
24. A computer-readable medium having computer-executable instructions for performing the method as recited in claim 13.

25. A method for supporting at least one geographical-based service, the method comprising:

- (a) determining a geographical position that is indicative of an approximate location of a mobile node;
- (b) determining a specified radius, the specified radius being a maximum distance from the geographical position;
- (c) receiving an announcement, the announcement containing an identification of a service, a service geographical position, and a service radius, the service geographical position and the service radius being associated with a network entity supporting the service;
- (d) determining whether a service area corresponding to the service geographical position and the service radius is within a circular area, the circular area being determined by the geographical position and the specified radius;
- (e) if the service area is within the circular area, including the identification of the service in a filter to designate that the service is acceptable;
- (f) receiving a datagram that supports the service;
- (g) if the service is acceptable, accepting the datagram; and
- (h) if the service is not acceptable, rejecting the datagram.

26. The method of claim 25, further comprising:

- (i) detecting that the mobile node has moved to another geographical position;
- (j) in response to (i), determining if the service is acceptable; and
- (k) modifying the filter in accordance with (j).

27. A method for supporting a geographical-based service for at least one terminal node in a communications system, the method comprising:

- (a) receiving a datagram from a mobile node, by a server, the datagram supporting the geographical-based service, a message header of the datagram containing a geographical position of the mobile node;
- (b) extracting the geographical position from the datagram; and
- (c) providing the geographical-based service for the mobile node based on the geographical position.

28. The method of claim 27, wherein (c) comprises:

- (i) sending a request to a broadcast network based on the geographical position, the request instructing the broadcast network to deliver the geographical-based service to another mobile node in a service area, the service area being specified by a destination position and a specified radius.

29. A method for supporting a geographical-based service for at least one terminal node in a communications system, the method comprising:

- (a) receiving, by a content server, a datagram from a mobile node, by a server, the datagram indicating a query for a service configuration that is supported by the content server, a message header of the datagram containing a geographical position of mobile node;
- (b) extracting the geographical position from the datagram; and
- (c) sending configuration information that indicates a set of services, the set of services being supported by the content server in a service area, the geographical position being within the service area.

30. A method for supporting a geographical-based service for at least one terminal node in a communications system, the method comprising:

- (a) receiving a datagram from a mobile node, by a broadcast network, the datagram supporting the geographical-based service, the datagram containing a geographical position of the mobile node and a specified radius in a message header of the datagram;
- (b) extracting the geographical position and the specified radius from the datagram;
- (c) transmitting the datagram to associated transmitting facilities that are located in a serving area, the serving area being specified by the geographical position and the specified radius.

31. A method for supporting a geographical-based service for at least one terminal node in a communications system, the method comprising:

- (a) receiving a datagram from a mobile node, by an attachment point, the datagram supporting the geographical-based service;
- (b) determining, by the attachment point, whether the datagram contains a geographical position that is associated with the mobile node;
- (c) if the datagram does not contain the geographical position, inserting, by the attachment point, an alternative geographical position, the alternative geographical position being associated with the attachment point; and
- (d) transmitting the datagram to a destination address.

32. The method of claim 31, wherein (d) comprises:

- (i) passing the datagram through a router based on the geographical position.

33. A terminal node that supports a geographical-based service in a communications system, comprising:

a location determination module that determines a position of the terminal node;

a communications module that supports communications between the terminal node and a serving network, the serving network supporting the geographical-based service; and

a processor that receives information about the position from the location determination module and sends a datagram to the serving network through the communications module, the processor being configured to perform:

(a) determining a geographical position that is associated with the terminal node;

(b) inserting the geographical position into a message header of the datagram, the datagram supporting the geographical-based service; and

(c) sending, by the terminal node, the datagram.

34. The terminal node of claim 33, wherein the processor is further configured to perform:

(d) inserting an indicator into the datagram, wherein the indicator restricts processing of the first geographical position by another entity of the communications system.

35. A signal for transmitting computer information, the signal propagating on a communications channel between a terminal node and a serving network, the signal comprising:

(a) a position communications component that is indicative of a geographical position associated with the terminal node, the position communications component being contained in a message header of a datagram, the geographical position comprising a latitude data field and a longitude data field;

(b) a velocity communications component of the datagram that is indicative of a velocity of the terminal node, the velocity communications component being contained in the message header, the velocity communications component comprising a velocity indicator that specifies that contained velocity information is included;

(c) a position uncertainty communications component of the datagram that is indicative of a position uncertainty of the geographical position, the position uncertainty communications component being contained in the message header, the position uncertainty communications component comprising an position uncertainty indicator that specifies that contained position uncertainty information is included; and

(d) a velocity uncertainty communications component of the datagram that is indicative of a velocity uncertainty of the velocity, the velocity uncertainty communications component being contained in the message header, the velocity uncertainty communications component comprising a velocity uncertainty indicator that specifies that contained velocity uncertainty information is included.

36. The signal of claim 35, further comprising:

(e) an altitude communications component of the datagram that is indicative of an altitude associated with the terminal node, the altitude communications component being contained in the message header, the altitude communications component comprising an altitude indicator that specifies that contained altitude information is included.

37. The signal of claim 35, further comprising:

(e) a radius communications component of the datagram that is indicative of a specified radius for supporting a geographical-based service.

38. The signal of claim 35, wherein the datagram complies with Internet Protocol version 6, and wherein the message header comprises a destination options header.

39. The signal of claim 35, wherein the datagram complies with Internet Protocol version 6, and wherein the message header comprises a hop-by-hop header.

40. The signal of claim 35, further comprising:

(e) a time component of the datagram that is indicative of a current time when the geographical position is determined.

41. The signal of claim 35, further comprising:

(e) a version component of the datagram that is indicative of a version of the message header.

42. The signal of claim 35, further comprising:

(e) a datum component of the datagram that is indicative of a method for determining the geographical position.

43. A signal for transmitting computer information, the signal propagating on a communications channel between a terminal node and a serving network, the signal comprising:

(a) a position communications component that is indicative of a geographical position associated with the terminal node, the position communications component being contained in a message header of a datagram, the geographical position comprising a latitude data field and a longitude data field;

(b) an altitude communications component of the datagram that is indicative of an altitude associated with the terminal node, the altitude communications component being contained in the message header, the altitude communications component comprising an altitude indicator that specifies that contained altitude information is included; and

(c) a radius communications component of the datagram that is indicative of a specified radius for supporting a geographical-based service.

44. The signal of claim 43, wherein the datagram complies with Internet Protocol version 6, and wherein the message header comprises a destination options header.

45. The signal of claim 43, wherein the datagram complies with Internet Protocol version 6, and wherein the message header comprises a hop-by-hop header.

46. A method for supporting a geographical-based service for at least one mobile node in a wireless communications system, the method comprising:

- (a) acquiring a geographical position by a mobile node with a Global Position Satellite (GPS) location determination module, the geographical position indicative of a location of the mobile node, the geographical position comprising an approximate latitude and an approximate longitude;

- (b) inserting the geographical position into an extension header of a datagram, the datagram supporting the geographical-based service, wherein the datagram complies with an Internet Protocol version 6 (IPv6) specification; and

- (c) sending, by the mobile node, the datagram.

47. The method of claim 1, further comprising:

- (d) inserting an indicator into the first datagram, wherein the indicator restricts processing of the first geographical position and a destination location by another entity of the communications system.